The relationship between destination image and destination safety during technological and social changes COVID-19 pandemic

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ABSTRACT

This study aimed to assess the relationship between safety perceptions and destination image in the Central European region during the technological and social environment change brought about by the COVID-19 pandemic. The study sample consisted of respondents from three Central European countries, namely, the Czech Republic, Hungary, and Slovakia. The quantile regression analysis was used to analyze the relationship between the image of the destination and its perceived safety. The results showed that concerns about the safety of the tourism environment could be negatively associated with the image of the infrastructure in Hungary and Slovakia, with value for money in the three countries, and with images of enjoyment in Slovakia. Higher levels of destination safety may be associated with a more positive destination image, with health, facilities and services being the most important dimensions of perceived safety, because of the pandemic. This study contributes to the knowledge of the concept of destination images and the development of tourism.

Keywords: Tourism management, Destination image, Safety, Perception, Domestic tourists, Central European countries

1. Introduction

The image of a destination is a key element of tourism management, as it embodies an economic value and contributes positively to the growth and development of the tourism sector **(Carballo et al., 2015), (Grišar et al., 2021), (Haller et al., 2021)**. Indeed, image plays an important role in the choice of tourist destinations **(Stylos et al., 2016; Zhang et al., 2018a)**. This encourages academics and professionals to look for ways to improve the image of a destination while understanding that tourists' perceptions are essential for success. Tourist perceptions constitute the core of tourism. With increasing competition, it is recognized that destinations should create positive perceptions and emotions for their visitor market to improve their competitiveness. Perceived safety is a prominent factor for most visitors and

the tourism sector overall **(Cohen and Cohen, 2012)**. Additionally, it can enhance the decision-making of tourist visitors **(Karl, 2018)**. It is possible to state that tourism safety is a vital aspect that influences the image of a destination **(Ryu et al., 2016; Tasci and Boylu, 2009)**. Thus, there is no doubt that destination image and destination safety are two elements of tourism that affect tourist decision-making.

Although the perception of safety, as well as the image of the destination, is important for developing tourism, its empirical analysis has received limited attention among researchers from the Visegrad Group consisting of the Czech Republic, Hungary, and Slovakia. Therefore, despite the significance of the issue, an examination of the perceived safety and destination image in Central Europe is lacking. Simultaneously, to the best of the authors' knowledge, a similar study was not conducted during the health crisis caused by the Coronavirus disease 2019 (COVID-19). These facts, reflecting the significant technological and social change, encouraged the research presented, whose purpose was not only to understand individual relationships but also to verify the tools to measure the perceived destination image and the safety of the destination. In particular, in the Czech Republic, Slovakia, and Hungary, this issue has long been neglected and overlooked both in academia and industry practice. This resulted in insufficient actions and poor implementation of decisions and interventions in the tourism sector without an evidence base to draw on. Additionally, the COVID-19 pandemic has exacerbated this problem, which is currently one of the central and current issues in the world owing to the ongoing health crisis **(Lumayag et al., 2020; Rebhun, 2021)**. Therefore, the revitalization of tourism in these countries is a prominent goal of the Visegrad Group. Based on this, the study presented can help policymakers and professionals from the Visegrad Group to achieve the goals they have set in the strategic priorities for 2021 **(Visegrad Fund, 2021)**.

Although there are studies examining the relationship between perceptions of safety and destination image, to the best of the authors' knowledge none of them was conducted during the COVID-19 pandemic, during which the situation in the tourism sector changed dramatically. Considering all the abovementioned arguments, the study aimed to assess the relationship between safety perceptions and destination image in the Central European region in terms of technological and social change during the COVID-19 pandemic. In theory, this study contributes to the knowledge of destination image in the context of perceived safety in these research-neglected countries. Furthermore, this study contributes to the knowledge in the context of a difficult period for global tourism, brought on by the pandemic **(Ribaudo et al., 2020)**. In practical terms, this study helps professionals and managers better understand the issue during the health crisis, and develop more effective strategies to improve the image of a destination, representing a valuable element in the development of the tourism sector **(Carballo et al., 2015; Pike, 2002; Zhang et al., 2018b)**.

2. Literature review

2.1. Destination image

The image of a tourist destination is a unique element that makes one destination perceived as different from others; it also contributes to tourism development and is a crucial determinant of success **(Carballo et al., 2015; Pike, 2002; Zhang et al., 2018a)**. Its importance lies in a key role in the decision-making of tourist visitors, but also their behavior at the destination **(Carballo et al., 2015; Qu et al., 2011)**. **Kanwel et al. (2019)** and **Sánchez-Sánchez et al. (2021)** emphasized the positive relationship between destination image, tourist loyalty, intention to visit, word of mouth, and tourist satisfaction **(Marín-García et al., 2022; Xuefeng et al., 2022)**. In this context, evidence shows that a positive destination image has a significant positive effect on tourists' engagement and future

intentions **(Kim and Barber, 2021; Stylos et al., 2016)**. The destination image is an indicator that can be understood also through the analytical platforms for instance, where big data or technological forecasting play a key role **(Chung et al., 2015; Kim et al., 2017; Liu et al., 2018, Weismayer et al., 2021)**. The image of the destination also has the greatest impact on the intention of tourists to recommend it to others **(Afshardoost and Eshaghi, 2020)** or continuing loyalty to the destination **(Jeong and Kim, 2021)**. Thus, the image is considered the most important aspect of a destination, and it is crucial to identify those destination features that contribute to building a positive destination image **(Konecnik Ruzzier, 2010; Molina et al., 2010)**. According to **Kotler et al. (1993)**, destination image represents individuals' ideas, beliefs, perceptions, attitudes, and information related to a place. In other words, the destination image consists of both positive and negative perceptions, based on which tourists choose one destination from the potential alternatives **(Prayag, 2009)**. They choose a destination with stronger and more positive perceptions. Accordingly, tourist destinations compete on destination image perceptions **(Baloglu et al., 2014)**. All these findings emphasize the importance of improving the image of a destination.

The destination' s image is one of the relevant and represented elements of tourism development, as it refers to the perceptions of tourists of a country in all its complexity **(Cakoci and Tolmaci, 2018)**. Therefore, each country should monitor and improve its image, the countries of the Visegrad Group being no exception **(Bucher, 2015)**. In this context, it should be emphasized that the promotion of image and tourism is one of the strategic priorities of the countries of the Visegrad Group, including the Czech Republic, Slovakia, and Hungary **(Visegrad Fund, 2021)**. Previous findings showed great potential for improvement in terms of destination attractiveness and tourism development in these countries **(Cakoci and Tolmaci, 2018; Matzler et al., 2016; Micevski et al., 2021; Pompurova and Simockova, 2014)**. However, the destination image is not examined sufficiently in the Central European region.

The destination image can be examined from different angles. For instance, the image of a destination can be perceived by visitors or nonvisitors **(Stylidis and Cherifi, 2018)**. Previous literature recognizes the pre-visit image, the post-visit image, and the image during various travel phases **(Martín-Santana et al., 2017), (Gholamhosseinzadeh et al.,2021)**. It is also possible to categorize an image for first-time and repeat tourists **(Baloglu et al., 2014).** Based on the results of other studies, it can be said that domestic and foreign tourists perceive the image of a destination differently **(Seabra et al., 2020; Zhang et al., 2018b)** and, therefore, should receive separate attention. Affective, cognitive, and conative images are well-known in research **(Agapito et al., 2013; Stylos et al., 2016)**, but are also induced, organic, and complex images **(Chiu et al., 2016)**. Indeed, creating a destination image is a continuous and long-term process in several dimensions. Consequently, the research attention in this study was focused on domestic visitors and their postvisit cognitive image, which individuals created themselves through past experiences and various sources of information.

2.2. Attributes of destination image

Several scales to measure destination image consider different tourism attributes and destination-specific factors **(Beerli and Martin, 2004; Byon and Zhang, 2010)**. For example, **Rajesh (2013)** focused on factors such as safety and cleanliness, prices and affordability, attractions, infrastructure and facilities, rejuvenation, and a friendly local community and calm atmosphere. **Chi and Qu (2008)** considered the following attributes to measure the image of a destination: travel environment, natural attractions, entertainment and events, historic attractions, infrastructure, accessibility, relaxation, outdoor activities, and price and value. **Beerli and Martin (2004)** classified the components forming

the perceptions and evaluation of destinations into nine dimensions, namely (i) natural resources, (ii) tourist leisure and recreation, (iii) the natural environment, (iv) general infrastructure, (v) culture, history, and art, (vi) the social environment, (vii) tourist infrastructure, (viii) political and economic factors, and (ix) general leisure and recreation. **Aksu et al. (2009)** categorized five cognitive destination image factors, namely, shopping, health and hygiene, information, transportation, and accommodation. The scale developed by **Hui and Wan (2003)** consisted of eight cognitive factors, namely, leisure and tourist amenities, shopping and food paradise, residents and nightlife, political stability, adventure and weather, culture, cleanliness, and personal safety and convenience. In this study, the most clear tourism factors for overall image creation are particularly tourism infrastructure **(Long and Nguyen, 2018)**, tourism attractions **(Quintal et al., 2019; Sannassee and Seetanah, 2015)**, value for money, tourism enjoyment and behavioral intentions **(Bausch et al., 2019; Ladhari and Souiden, 2020; Phau et al., 2010; Van Dyk et al., 2019)**. All of these cognitive attributes are included in a scale for measuring destination image that was developed by **Byon and Zhang (2010)**. This multidimensional scale measures the destination image from the perspective of tourists, which can provide researchers and professionals with a reliable and valid analytical instrument to assess the destination image **(Byon and Zhang, 2010)**.

2.3. Perception of tourism safety and risk

The abovementioned facts emphasize the importance of examining tourists' internal perceptions as well as factors that could be significantly associated with individual dimensions of the destination image. There are many significant aspects, but safety concerns, perceived risks, and constraints also appear to be among the main aspects that should not be overlooked **(Kani et al., 2017; Khan et al., 2019)**.

Safety for tourists in visited places is essential to their enjoyment and experience, as well as a determinant of destination success **(Xie et al., 2021). Liu et al. (2016)** confirmed that the perceived safety of tourists influenced their travel intentions. This indicates that safety is a crucial attribute of tourism and it can be said that tourists' perception of safety at destinations is to some extent a perceived image of the safety of a destination **(Xie et al., 2021)**. Indeed, safety is one of the most serious challenges in tourism **(Hamm and Su, 2021)**, particularly during the technological and social change brought about by COVID-19 **(Chan, 2021; Shin et al., 2022)**. Tourism safety represents the personal safety of visitors and the safety of their property, including their ability to orient themselves in an unfamiliar environment and understand local signs and social conventions, and the safety of activities and consumer services **(Popescu, 2011)**. In the research community, concentration is mainly focused on safety concerns such as natural disasters, health epidemics, political instability, war, terrorism, crime, or cultural differences **(Lepp et al., 2011; Neumayer, 2004; Sofield, 2006)**. All of these aspects refer to risk, which is the opposite perspective of safety. In tourism risk research, perceived risk can equate to feelings of nervousness, fear, or concern **(Wolff et al., 2019)**. These concerns can be perceived in different dimensions; however, the truth is that perceived risk is increasingly part of the destination image **(Lepp et al., 2011; Perpiňa et al., 2021)**.

Following the abovementioned facts, **Nazir et al. (2021)** found that perceived risks negatively affect destination image and tourists' behavioral intentions. According to these authors, tourists may not intend to revisit a destination if they perceive more constraints and risks; on the other hand, they may intend to revisit a destination if they perceive a positive destination image. **Parrey et al. (2019)** examined the image of the destination given the identified sources of risk and considered sociocultural concerns to be the main source of risk perceived by domestic tourists. **Chew and Jahari (2014)** found

that perceived sociopsychological and financial risks affect the image of the destination, while perceived physical risk appears insignificant. In terms of natural risks (natural disasters, epidemic diseases), tourists with a low level of perceived risk tend to have a more positive destination image, overall satisfaction, and behavioral intention than tourists with a high perceived risk **(Tavitiyaman and Qu, 2013)**. Similar findings were revealed in other studies, which confirmed that natural disasters have negative effects not only on visitor perceptions and their decisionmaking **(De Urioste-Stone et al., 2016; Rittichainuwat, 2013; Rittichai-nuwat et al., 2018)** but also on destination image **(Khazai et al., 2018)**. This may lead to a decline in tourist demand **(Qiu Zhang, 2005)**; however, studies focusing on the comprehensive concept of tourism safety during a significant technological and social change and its role in the image of the destination are somewhat lacking.

Safety concerns have become a threat to tourists. From the opposite perspective, the destination image plays a key mediating role between risk perception and intention to revisit **(Liang and Xue, 2021)**, as a positive destination image can overcome risks and constraints **(Nazir et al., 2021)**.

2.4. Attributes of tourism safety

There are several scales for measuring safety in tourism or safety concerns, and their features should be emphasized. **Wan et al. (2021)** developed a proactive approach to assess tourist safety attitudes based on health concerns, personal safety, travel safety information, police safety, and vulnerability to crime. **Yen et al. (2021)** focused on factors such as safety norms, safety management, activities and equipment, safety resources, infrastructure and environment, travel safety risk, and tourist-resident interaction. **Xie et al. (2021)** in their study considered the perceived safety of human elements, the perceived safety of facilities and equipment elements, the perceived safety of natural environments, the perceived safety of social environments and the perceived safety of management elements. Finally, the scale developed by **Zou and Meng (2019)** consisted of factors such as the safety of the tourism environment, the safety of facilities and services, the safety of regional culture, safety information, and general safety concerns.

3. Methodological background

The main objective of the study was to assess the relationship between safety perceptions and destination image in the Central European region during the COVID-19 pandemic. Based on the theoretical insights in the previous section, the following research question was formulated.

— Is there a significant relationship between perceptions of selected safety dimensions and destination image dimensions in the Czech Republic, Hungary, and Slovakia during the period when tourism was affected by the technological and social change brought about by COVID-19?

Regarding the objective of the study, the analytical processes included two main categories of indicators. First, the image of a destination, (IMG), was measured using a measurement adopted from an existing scale developed by **Byon and Zhang (2010)**. This scale covered the following five dimensions: (i) infrastructure image (IMG inf), (ii) attraction image (IMG att), (iii) value-for-money image (IMG val), (iv) enjoyment image (IMG enj) and (v) behavioral intentions image (IMG bi). Second, the perception of safety (SFT) was identified using a measurement adopted from an existing scale developed by **Zou and Meng (2019)**. As the scale was coded in such a way that a higher score represented a higher rate of safety concern, the term “safety concerns” was also used. The scale of

safety concerns covered the following dimensions: (i) tourism environment (SFT env), (ii) facilities and services (SFT fac), (iii) regional culture (SFT cul), and (iv) health and safety concerns (SFT hlt). Both scales offered possible responses using a 5-point Likert scale as follows: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. The individual scale items of the questionnaire are listed in **Appendix 1.** In addition to the scales mentioned, the questionnaire contained sociodemographic items **(Table 1)**.

The research sample consisted of respondents from three Central European countries, namely, the Czech Republic, Hungary, and Slovakia. Research sampling was based on availability and willingness to volunteer. Data collection took place between January and April 2021, that is, during the COVID-19 pandemic, which can be considered a unique aspect of the study. The questionnaire items were first translated from English into Czech, Slovak, and Hungarian. Subsequently, the online questionnaire was distributed on social networks and sent to email addresses from public and private databases. Regarding social networks, the questionnaire was shared freely, published in various social groups, and promoted through paid advertising. None of the respondents received any financial reward.

Table 1 presents the sociodemographic profile of the sample after cleaning the dataset. The questionnaire contained an item related to the time of stay, while the observations of respondents who had their stay before 2018 were excluded. Another criterion for participation was informed consent, whereby respondents who did not give informed consent were excluded from the final research sample. The data were also cleaned up in terms of cross-item comparison, with a total of four observations excluded owing to a discrepancy between social status and year of birth as these parameters play a significant role. Additionally, respondents, who are not residents in a country of their stay, were excluded. In this way, 21 observations were removed, and five observations were excluded based on a system error in recording responses.

Focusing on **Table 1**, it can be seen that the research sample showed several deviations from the general population. The clearest deviation was the higher predominance of women and students (younger respondents). This discrepancy can be considered as a limitation of this research. Disproportionality was also observed in forms of tourism, indicating another limitation.

Table 1 Frequency analysis of the sociodemographic characteristics of the sample.

Variable	CZ ($n = 666$)	HU ($n = 369$)	SK ($n = 846$)
Gender			
Male	203 (30.48 %)	127 (34.42 %)	276 (32.62 %)
Female	463 (69.52 %)	242 (65.58 %)	570 (67.38 %)
Socio-economic status			
Student	387 (58.11 %)	278 (75.34 %)	418 (49.41 %)
Employed	226 (33.93 %)	78 (21.14 %)	341 (40.31 %)
Unemployed	13 (1.95 %)	3 (0.81 %)	28 (3.31 %)
Maternity leave/ guardianship	28 (4.20 %)	5 (1.36 %)	41 (4.85 %)
Pensioner	12 (1.80 %)	5 (1.36 %)	18 (2.13 %)
Marital status			
Single	525 (78.83 %)	317 (85.91 %)	598 (70.69 %)
Married	92 (13.81 %)	45 (12.20 %)	204 (24.11 %)
Divorced	43 (6.45 %)	5 (1.36 %)	37 (4.37 %)
Widowed	6 (0.90 %)	2 (0.54 %)	7 (0.83 %)
Education			
Primary	35 (5.26 %)	15 (4.07 %)	30 (3.55 %)
Secondary	455 (68.32 %)	41 (11.11 %)	403 (47.64 %)
Tertiary	176 (26.43 %)	313 (84.84 %)	413 (48.82 %)
Form of tourism			
Urban	210 (31.53 %)	179 (48.51 %)	260 (30.73 %)
Suburban	102 (15.32 %)	21 (5.69 %)	102 (12.06 %)
Rural	205 (30.78 %)	141 (38.21 %)	129 (15.25 %)
Mountain	149 (22.37 %)	28 (7.59 %)	355 (41.96 %)

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, n-frequency of observations.

Source: elaborated according to the results of the primary data.

Analytical processing included descriptive analysis and a nonparametric test of differences (Kruskal-Wallis H) in the first step. Subsequently, quantile regression analysis (percentiles: λ = 0.25, 0.50, 0.75) was used to assess the significance of possible relationships. The analytical processes were performed using the programming language R v 4.1.0 **(R Core Team, 2021)**. The R package quantreg was applied in the analysis **(Koenker, 2022)**.

4. Results

This section presents the main results of the study. In the first analytical step, the reliability of selected dimensions was verified. This was performed using Cronbach's a, and none of the analyzed cases showed a result lower than 0.7. Thus, the reliability rate of individual dimensions was acceptable for use in other analytical processes. These results also indicated that both the destination image scale and the safety scale appeared reliable for use by researchers and practitioners.

Table 2 presents the results of the descriptive analysis and provides a first look at the data on the image of a destination (IMG) and the perception of safety (SFT) in their dimensions in the classification of the Czech Republic, Hungary, and Slovakia. Regarding the image of a destination and its dimensions, a higher score indicated a more positive perception of the image of a destination. In contrast, a lower

score of safety perception indicated a more positive result. In other words, higher scores on these dimensions indicated a higher perception of safety concerns. With a focus on mean and median values on the one hand, it can generally be stated that the most positive destination image was found in Hungary. Alternatively, this country also showed the least positive safety indicators, that is, higher perceptions of safety concerns than the Czech Republic and Slovakia. The last row of the table shows the results of the nonparametric test of differences (Kruskal-Wallis H). The results showed significant differences in most indicators between countries.

Table 2 The statistical description of indicators in the classification of selected countries.

Country	Statistics	IMG inf	IMG att	IMG val	IMG enj	IMG bi	SFT env	SFT fac	SFT cul	SFT hlt
	Mean	4.169	3.938	3.913	3.817	4.103	1.902	1.697	1.628	1.594
	Median	4.400	4.000	4.000	4.000	4.333	1.600	1.250	1.000	1.000
	Std. Dev.	0.797	0.763	0.892	0.815	0.914	0.889	0.870	0.940	0.889
	Skewness	−1.391	−0.850	−0.789	−0.625	−0.996	1.047	1.492	1.644	1.784
CZ	Kurtosis	2.342	1.387	0.344	0.443	0.633	0.878	2.118	2.190	3.019
	Minimum	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5
	25. Percentile	3.800	3.500	3.400	3.250	3.667	1.000	1.000	1.000	1.000
	75. Percentile	4.800	4.500	4.600	4.500	5.000	2.400	2.000	2.000	2.000
	Mean	4.183	4.089	4.082	4.002	4.052	2.092	1.893	1.868	1.835
	Median	4.200	4.167	4.200	4.000	4.333	1.800	1.500	1.250	1.250
	Std. Dev.	0.763	0.792	0.820	0.807	0.979	1.098	1.053	1.104	1.102
	Skewness	−1.168	−0.912	−0.961	−0.714	−1.053	0.864	1.124	1.194	1.255
HU	Kurtosis	1.906	0.970	0.967	0.683	0.869	−0.159	0.398	0.473	0.625
	Minimum	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5
	25. Percentile	3.800	3.583	3.600	3.500	3.333	1.000	1.000	1.000	1.000
	75. Percentile	4.800	4.833	4.800	4.750	5.000	3.000	2.500	2.500	2.500
	Mean	4.050	3.887	3.938	3.789	4.092	1.922	1.729	1.656	1.696
	Median	4.200	4.000	4.000	4.000	4.333	1.800	1.250	1.000	1.250
	Std. Dev.	0.869	0.862	0.915	0.903	1.006	0.923	0.896	0.918	0.915
	Skewness	−1.140	−0.824	−0.963	−0.647	−1.092	0.890	1.426	1.497	1.364
SK	Kurtosis	1.320	0.685	0.820	0.272	0.562	0.156	1.717	1.746	1.246
	Minimum	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5
	25. Percentile	3.600	3.333	3.400	3.250	3.667	1.000	1.000	1.000	1.000
	75. Percentile	4.800	4.667	4.600	4.500	5.000	2.600	2.000	2.000	2.000
Kruskal-Wallis H		**8.60****	**16.45†**	**8.62****	**16.05†**	1.1	3.94	4.76*	**12.34*****	**10.02*****

*Significance: * p-value <0.1; ** p-value <0.05; *** p-value <0.01; † p-value <0.001. Significant results are highlighted in bold.*

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, IMG inf-infrastructure image, IMG att-attraction image, IMG val-value for money image, IMG enj-enjoyment image, IMG bi-behavioral intention image, SFT env-perceived safety of the tourism environment, SFT fac-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns.

Source: elaborated according to the results of the primary data.

Tables 3 to 7 present the results of the quantile regression analysis, and several significant relationships between safety perceptions and the destination image were confirmed. At this point, attention should be focused on the negative p coefficients identified in almost all significant cases. This supported the fact that a decrease in individual safety concerns (that is, an increase in safety perceptions) was associated with an increase in the destination image value. The positive p coefficient was found in only two cases analyzed in Slovakia. All interpretations are intended and formulated in terms of perceptions of safety concerns and perceptions of the destination image.

Based on **Table 3**, the following significant results may be emphasized. Regarding the lowest image rate of infrastructure image ($\lambda = 0.25$), it was possible to confirm a negative relationship in the case of concerns not only about the safety of facilities and services in the Czech Republic and Hungary but also

in the case of health and safety concerns in Slovakia. In terms of the moderate rate of infrastructure image (λ = 0.5), significant negative relationships were found only in Slovakia, specifically, in perceived concerns about the safety of the tourism environment and health and safety concerns. With a focus on the highest infrastructure image (λ = 0.75), concerns about the safety of the tourism environment were negatively associated with the infrastructure image in the Czech Republic and Slovakia, while perceived concerns about the safety of facilities and services were negatively associated with the image of the infrastructure in Hungary. Finally, a negative relationship was also revealed in the case of health and safety concerns in Slovakia. Generally, health and safety concerns played an important role in Slovakia in terms of the image of infrastructure. Based on all these findings, it was possible to conclude that a decrease in safety concerns in individual dimensions was associated with an increase in infrastructure image value and vice versa. However, note that there was no significant relationship between perceived concerns about the safety of regional culture in any of the countries analyzed.

Table 3 Relationships between safety perceptions and infrastructure image.

λ	Dependent variable:	CZ	HU	SK
	IMG inf	Coef (SE)	Coef (SE)	Coef (SE)
0.25	Intercept (α)	**4.7† (0.124)**	**4.68† (0.158)**	**4.47† (0.121)**
	SFT env	−0.05 (0.074)	0.08 (0.109)	−0.03 (0.069)
	SFT fac	**−0.17** (0.086)**	**−0.28** (0.137)**	−0.0132
	SFT cul	−0.05 (0.072)	−0.034	−0.05 (0.088)
	SFT hlt	**−0.23** (0.092)**	−0.06 (0.126)	**−0.25*** (0.088)**
	R2	0.09	0.1	0.09
0.5	Intercept (α)	**5.08† (0.105)**	**4.94† (0.12)**	**5.14† (0.094)**
	SFT env	−0.11 (0.067)	<0.01 (0.082)	**−0.16** (0.06)**
	SFT fac	−0.12 (0.079)	−0.01854	−0.12 (0.085)
	SFT cul	−0.08 (0.064)	−0.1 (0.109)	−0.03 (0.065)
	SFT hlt	−0.01547	−0.07 (0.11)	**−0.23*** (0.077)**
	R2	0.08	0.11	0.09
0.75	Intercept (α)	**5.3† (0.088)**	**5.24† (0.095)**	**5.38† (0.078)**
	SFT env	**−0.17*** (0.063)**	0.01 (0.066)	**−0.19*** (0.062)**
	SFT fac	−0.13 (0.088)	**−0.37† (0.094)**	−0.05 (0.088)
	SFT cul	<0.01 (0.069)	−0.03 (0.119)	0.09 (0.091)
	SFT hlt	<0.01 (0.092)	0.13 (0.121)	**−0.23** (0.09)**
	R2	0.04	0.11	0.06

*Significance: * p-value <0.1; ** p-value <0.05; *** p-value <0.01; † p-value <0.001. Significant results are highlighted in bold.*

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, IMG inf-image of infrastructure, SFT env-perceived safety of the tourism environment, SFT fa-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns, λ-coefficient (quartile), R^2-Koenker and Machado's R^2.

Source: elaborated according to the results of the primary data.

Table 4 Relationships between safety perceptions and attraction image.

λ	Dependent variable:	CZ	HU	SK
	IMG att	Coef (SE)	Coef (SE)	Coef (SE)
0.25	Intercept (α)	**3.72† (0.123)**	**4.35† (0.181)**	**3.86† (0.129)**
	SFT env	0.07 (0.081)	0.09 (0.119)	**0.14** (0.068)**
	SFT fac	0.05 (0.098)	−0.18 (0.139)	−0.14 (0.106)
	SFT cul	−0.09 (0.072)	−0.2 (0.123)	−0.09 (0.102)
	SFT hlt	**−0.19** (0.091)**	−0.13 (0.124)	−0.0171
R2		0.02	0.09	0.03
0.5	Intercept (α)	**4.27† (0.126)**	**4.82† (0.136)**	**4.28† (0.107)**
	SFT env	−0.02 (0.074)	0.06 (0.093)	0.04 (0.064)
	SFT fac	0.13 (0.093)	**−0.25** (0.122)**	**−0.19** (0.093)**
	SFT cul	−0.00888	−0.14 (0.121)	**0.14** (0.072)**
	SFT hlt	−0.01632	<0.01 (0.125)	**−0.21** (0.086)**
R2		0.01	0.06	0.02
0.75	Intercept (α)	**4.7† (0.1)**	**5.32† (0.107)**	**4.89† (0.083)**
	SFT env	−0.09 (0.071)	−0.04 (0.075)	−0.02 (0.063)
	SFT fac	0.1 (0.087)	−0.02128	−0.04 (0.082)
	SFT cul	−0.00988	−0.08 (0.118)	0.01 (0.068)
	SFT hlt	−0.01 (0.093)	<0.01 (0.118)	−0.0132
R2		0.01	0.09	0.03

*Significance: * p-value <0.1; ** p-value <0.05; † p-value <0.001. Significant results are highlighted in bold.*

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, IMG att-attraction image, SFT env-perceived safety of the tourism environment, SFT fac-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns, λ-coefficient (quartile), R^2-Koenker and Machado' s R^2.

Source: elaborated according to the results of the primary data.

Table 4 shows the results for the attraction image as a dependent variable and several significant results were identified. In the case of the lowest attraction image (λ = 0.25), there was a negative relationship with health and safety concerns in the Czech Republic, but a positive relationship with concerns about the safety of the tourism environment in Slovakia. In terms of the moderate attraction image (λ = 0.5), significant results were found in Hungary and Slovakia. In Hungary, concerns about the safety of facilities and services were negatively associated with the image of attractions. In Slovakia, a negative relationship was identified for health and safety concerns, as well as concerns about the safety of facilities and services. Interestingly, in Slovakia a positive relationship was also observed between concerns about the safety of regional culture and the image of attractions. Finally, there was no significant result for the highest rate of attraction image (λ= 0.75). Nevertheless, significant results with a negative coefficient led to the fact that a decrease in safety concerns in dimensions such as facilities and services and health was associated with an increase in the image of attraction value. The exceptions were two positive relationships identified in Slovakia.

The results for the image of value for money as a dependent variable are shown in **Table 5** and significant relationships were found in several cases analyzed. Focusing on the lowest rate of value-for-money image (λ= 0.25), significant and negative coefficients were found in dimensions such as health and safety concerns in the Czech Republic and Slovakia, as well as concerns about the safety of facilities and services in Hungary. In Slovakia, there was also a negative relationship between concerns

about the safety of the tourist environment and the image of value for money. In terms of the moderate value-for-money image rate (λ = 0.5), all three countries showed a significant negative relationship in the case of concerns about the safety of the tourism environment.

Table 5 Relationships between safety perceptions and value-for-money image

λ	Dependent variable:	CZ	HU	SK
	IMG val	Coef (SE)	Coef (SE)	Coef (SE)
0.25	Intercept (α)	**4.02† (0.15)**	**4.48† (0.187)**	**4.31† (0.116)**
	SFT env	−0.04 (0.092)	−0.11 (0.117)	**−0.16** (0.07)**
	SFT fac	−0.05 (0.101)	**−0.37** (0.164)**	−0.12 (0.087)
	SFT cul	0 (0.092)	0.04 (0.128)	0.08 (0.068)
	SFT hlt	**−0.28*** (0.105)**	−0.04 (0.138)	**−0.22** (0.088)**
R2		0.06	0.09	0.07
0.5	Intercept (α)	**4.76† (0.127)**	**4.93† (0.144)**	**4.77† (0.101)**
	SFT env	**−0.21** (0.095)**	**−0.2** (0.093)**	**−0.15** (0.071)**
	SFT fac	<0.01 (0.11)	**−0.24** (0.115)**	−0.01392
	SFT cul	−0.02 (0.089)	0.11 (0.125)	0.03 (0.073)
	SFT hlt	−0.02486	−0.04 (0.126)	−0.12 (0.079)
R2		0.06	0.06	0.05
0.75	Intercept (α)	**5.22† (0.122)**	**5.25† (0.104)**	**5.46† (0.082)**
	SFT env	**−0.23** (0.09)**	−0.09 (0.081)	−0.05 (0.065)
	SFT fac	−0.18 (0.125)	**−0.33*** (0.115)**	−0.12 (0.09)
	SFT cul	0.05 (0.087)	−0.03 (0.13)	−0.11 (0.075)
	SFT hlt	0.02 (0.137)	0.2 (0.134)	**−0.18** (0.077)**
R2		0.05	0.08	0.08

*Significance: * p-value <0.1; ** p-value <0.05; *** p-value <0.01; † p-value <0.001. Significant results are highlighted in bold.*

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, IMG val-image of value for money, SFT env-perceived safety of the tourism environment, SFT fac-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns, λ-coefficient (quartile), R^2-Koenker and Machado's R^2.

Source: elaborated according to the results of the primary data.

In Hungary, concerns about the safety of facilities and services with a negative coefficient also proved to be significant. Regarding the highest rate of value-for-money image (λ = 0.75), a negative relationship was identified in dimensions such as the tourism environment in the Czech Republic, facilities and services in Hungary, and health and safety concerns in Slovakia. All these findings indicated that with a reduction in safety concerns in individual dimensions, an increase in the image of value for money could be observed.

Based on the results in **Table 6**, the following main findings could be highlighted. With a focus on the lowest image enjoyment rate of enjoyment image (λ = 0.25), concerns about the safety of regional culture appeared significant in Hungary and concerns about health and safety were significant in the Czech Republic. Regarding the moderate rate of image enjoyment image (λ = 0.5), no significant result was found. Finally, a negative relationship could be observed between concerns about the safety of

the tourism environment and the highest rate of enjoyment related to the image (X = 0.75) but only in Slovakia. There was no significant result in the Czech Republic and Hungary. Based on a negative value of p coefficients, all significant results indicated that a decrease in safety concerns in the individual dimensions was associated with an increase in the enjoyment of the image and vice versa.

Table 7 shows the results for the image of intention in behavior as a dependent variable and the following significant results were identified. In the case of the lowest rate of image of the behavioral intention image (λ = 0.25), a negative relationship was found in the case of concerns about the safety of facilities and services in Hungary and Slovakia, while health and safety concerns were found to be significant in the Czech Republic. In terms of the moderate rate of the image of the intention image (λ = 0.5), results similar to those in the previous case were revealed.

Table 6 Relationships between safety perceptions and enjoyment image.

λ	Dependent variable:	CZ	HU	SK
	IMG enj	Coef (SE)	Coef (SE)	Coef (SE)
0.25	Intercept (α)	**3.31† (0.147)**	**4.02† (0.18)**	**3.65† (0.127)**
	SFT env	0.1 (0.092)	0.04 (0.095)	−0.04 (0.083)
	SFT fac	0.08 (0.102)	−0.02662	−0.01872
	SFT cul	−0.02 (0.07)	**−0.24** (0.121)**	−0.02 (0.086)
	SFT hlt	**−0.21** (0.096)**	0.15 (0.112)	0.02 (0.095)
	R2	0.01	0.04	0.01
0.5	Intercept (α)	**4.14† (0.124)**	**4.57† (0.151)**	**4.23† (0.115)**
	SFT env	<0.01 (0.087)	−0.1 (0.089)	<0.01 (0.078)
	SFT fac	<0.01 (0.101)	−0.02147	−0.08 (0.093)
	SFT cul	<0.01 (0.071)	−0.02 (0.119)	<0.01 (0.079)
	SFT hlt	−0.14 (0.094)	0.06 (0.12)	−0.01395
	R2	0.01	0.02	0.03
0.75	Intercept (α)	**4.63† (0.108)**	**5.27† (0.12)**	**5.06† (0.095)**
	SFT env	<0.01 (0.088)	−0.13 (0.095)	**−0.18** (0.07)**
	SFT fac	<0.01 (0.118)	−0.02904	0.01 (0.099)
	SFT cul	<0.01 (0.097)	−0.1 (0.146)	0.01 (0.097)
	SFT hlt	−0.13 (0.113)	0.19 (0.147)	−0.16 (0.104)
	R2	0.01	0.07	0.03

*Significance: * p-value <0.1; ** p-value <0.05; † p-value <0.001. Significant results are highlighted in bold.*

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, IMG enj-image of enjoyment, SFT env-perceived safety of the tourism environment, SFT fac-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns, λ-coefficient (quartile), R^2-Koenker and Machado's R^2.

Source: elaborated according to the results of the primary data.

Table 7 Relationships between safety perceptions and behavioral intention image.

λ	Dependent variable:	CZ	HU	SK
	IMG bi	Coef (SE)	Coef (SE)	Coef (SE)
0.25	Intercept (α)	**3.88† (0.173)**	**4.5† (0.219)**	**4.46† (0.168)**
	SFT env	0.02 (0.12)	−0.18 (0.122)	0.07 (0.092)
	SFT fac	0.13 (0.118)	**−0.34** ** **(0.174)**	**−0.41** *** **(0.148)**
	SFT cul	−0.01536	−0.1 (0.204)	−0.08 (0.139)
	SFT hlt	**−0.21** ** **(0.104)**	0.13 (0.174)	−0.08 (0.125)
R2		0.03	0.09	0.07
0.5	Intercept (α)	**4.56† (0.143)**	**5.1† (0.153)**	**5.32† (0.101)**
	SFT env	<0.01 (0.096)	−0.02783	−0.05 (0.071)
	SFT fac	0.09 (0.121)	**−0.44** *** **(0.159)**	**−0.21** ** **(0.098)**
	SFT cul	−0.01782	0.1 (0.154)	−0.06 (0.09)
	SFT hlt	−0.14 (0.124)	0.14 (0.161)	**−0.22** ** **(0.101)**
R2		0.01	0.08	0.08
0.75	Intercept (α)	**5.00† (0.088)**	**5.21† (0.12)**	**5.19† (0.084)**
	SFT env	<0.01 (0.082)	−0.01 (0.115)	<0.01 (0.066)
	SFT fac	<0.01 (0.125)	−0.16 (0.161)	<0.01 (0.09)
	SFT cul	<0.01 (0.09)	−0.1 (0.146)	<0.01 (0.071)
	SFT hlt	<0.01 (0.132)	0.06 (0.155)	**−0.19** ** **(0.088)**
R2		<0.01	0.03	0.01

*Significance: * p-value <0.1; ** p-value <0.05; *** p-value <0.01; † p-value <0.001. Significant results are highlighted in bold, λ-coefficient (quartile), R^2-Koenker and Machado's R^2.*

Note: CZ-Czech Republic, HU-Hungary, SK-Slovakia, IMG bi-image of intention behavior, SFT env-perceived safety of the tourism environment, SFT fac-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns.

Source: elaborated according to the results of the primary data.

Therefore, concerns about the safety of facilities and services were negatively associated with the image of behavioral intention in Hungary and Slovakia, but concerns about health and safety appeared significant in Slovakia. Focusing on the highest rate of behavioral intention image (λ= 0.75), only one significant result was confirmed, specifically for health and safety concerns in Slovakia. All significant results showed a negative coefficient, indicating that the perception of safety concerns in dimensions such as facilities and services and health and safety concerns was negatively associated with the image of intention of behavior. The perception of concerns about the safety of the tourism environment and regional culture did not show significant results in any country.

5. Discussion

Generally, respondents from the countries analyzed in Central Europe, specifically from the Czech Republic, Slovakia, and Hungary, reported positive perceptions of the destination image and lower safety concerns, despite the COVID-19 pandemic. In all countries, the tourism infrastructure image was perceived more positively, whereas the image of enjoyment acquired the lowest mean scores. These

findings indicate that the selected Central European countries were characterized by a good level of tourism infrastructure in terms of transport infrastructure, accommodation, tourist centers, hygiene and the cleanliness of a destination. Other studies have also shown that these factors are important for creating a positive image of a destination **(Aksu et al., 2009)**, and therefore, continuous efforts should be made to improve these attributes in the Czech Republic, Slovakia, and Hungary. However, tourist pleasures, enjoyment, excitement, and novelty represented the characteristics of the destination image, in which the countries analyzed showed great potential for improvement **(Bausch et al., 2019; Ladhari and Souiden, 2020; Van Dyk et al., 2019)**. In terms of safety perception, respondents had the greatest concerns about the safety of the tourism environment, but the least about the safety of regional culture and health. The tourism environment and its tourist characteristics were the safety factors that several authors considered to be the most important **(Wan et al., 2021; Xie et al., 2021; Yen et al., 2021; Zou and Meng, 2019)** based on which tourists can build an image of a destination.

By summarizing the results of the quantile regression analysis, it can be concluded that concerns about the safety of the tourism environment could be negatively associated with the image of the infrastructure in the Czech Republic and Slovakia, with the image of value for money in the three countries, and with the image of enjoyment in Slovakia. This agrees with the findings of **Li and Pearce (2016)**, which indicate that a chaotic tourism environment (significant technological and social changes) can be unpleasant for tourists and, therefore, approaches to creating a safer tourism environment should be implemented. Otherwise, a lower safety level in the tourism environment can lead to a danger of negative consequences that might occur during travel **(Cui et al., 2016)**, resulting in a poorer destination image. In a study conducted by **Rajesh (2013)**, the travel environment was also identified as a factor influencing tourists' perceptions and this finding agrees with the findings of thispresent study. The main results included the fact that a decrease in concerns about the safety of the tourism environment was associated with an increase in the individual dimensions of the destination image. However, concerns about the safety of the tourism environment were positively associated with the image of the attractions in Slovakia. To increase the perceived safety of the tourism environment, attention should be paid to crowded tourist spots **(Yin et al., 2019)**, tourism signs and safety communication **(Saunders et al., 2019)**, tourism safety monitoring **(Psaroudakis et al., 2021)**, traffic issues **(Wang et al., 2016)** and pollution **(Becken et al., 2017)**.

In several cases analyzed, it was found that concerns about the safety of facilities and services were negatively associated with the image of the infrastructure, particularly in Hungary but also in the Czech Republic, with the image of attraction in Hungary and Slovakia, the image of value for money in Hungary, and the image of intention of behavior in Hungary and Slovakia. This indicates that the perceived safety of facilities and services played an important role in the image of the destination in Hungary. Regarding the main findings, **Rajesh (2013)** also included tourism facilities among the factors influencing the image of a destination, whereas tourist satisfaction was influenced by accommodation, food, transportation services, and shopping. All of these constructs are associated with destination loyalty, which is linked to the image of a destination **(Kanwel et al., 2019; Rajesh, 2013)**. This research showed that not only the quality of facilities and services **(Aksu et al., 2009; Mai et al., 2019)** but also their safety, are important for tourists and their perceptions of the destination image. Indeed, a decrease in concerns about the safety of facilities and services could be associated with a positive increase in the image of the destination.

The results revealed that a decrease in health and safety concerns was associated with a positive increase in all dimensions of the destination image, particularly in Slovakia and the Czech Republic. These results are all the more important during the COVID-19 pandemic. Thus, health and safety

concerns were negatively associated with the image of the infrastructure, the image of attraction, the image of value for money, the image of enjoyment and the image of the intention of behavior. These findings agree with those of **Sohn and Yoon (2016)**, who confirmed that a perceived health risk affects the destination image negatively. Similar findings were revealed in other studies **(Khan et al., 2020)**. In particular, during the COVID-19 pandemic, the importance of health and safety during travel has increased **(Chan, 2021; Shin et al., 2022)**. Worries are generally an important antecedent to both perceptions of travel health risks and risk-protective behavior **(Chien et al., 2017)**. Therefore, attention should be paid to mitigating risks to tourists and managing health threats **(Wood and Brett-Major, 2019)**. This study emphasizes this, in particular, in the context of the COVID-19 pandemic.

Perceived concerns about the safety of regional culture were negatively associated with the image of enjoyment in Hungary, but also positively associated with the image of attraction in Slovakia. This discrepancy requires more in-depth investigation in further research. Indeed, cultural aspects are a very complex factor on the part of tourists, for whom cultural value orientation plays an important role **(Shin et al., 2022)**, but also on the part of the local community at a destination **(Tian et al., 2021; Wu et al., 2021). Parrey et al. (2019)** also highlighted sociocultural concerns as a major source of risk perceived by tourists.

Most of the findings revealed in Central European countries support the general knowledge that safety concerns are negatively associated with a destination image **(Chew and Jahari, 2014; Khazai et al., 2018; Tavitiyaman and Qu, 2013)**. Therefore, even in Central Europe, it is possible to agree with the statement that tourists with low perceived safety concerns tend to have a more positive destination image than those tourists with high perceived concerns **(Tavitiyaman and Qu, 2013)**. In other words, the main findings revealed that the higher the level of perceived safety, the higher the positive level of the perceived image of a destination. **Nazir et al. (2021)** also emphasized that perceived concerns negatively impact destination image. However, **Ruan et al. (2017)** revealed a positive relationship between tourism risk and destination image. The countries analyzed were relatively heterogeneous in terms of the relationships between safety and image, and therefore, this issue requires a comprehensive approach.

5.1. Practical and policy implications

From the point of view of political and practical implications, the main actors in the tourism sector should be aware that negative perceptions of safety among tourists can also be reflected in the image of the destination overall. Therefore, political and practical attention must be focused on reducing potential sources of safety concerns, as negative tourism experiences can lead to undesirable future behavior **(Kim et al., 2020)**, and during the pandemic, this is even more important. The results of the study indicate that higher destination safety may be associated with a more positive destination image, with health, and facilities and services being the most important dimensions of perceived safety. Thus, policymakers and tourism professionals should work together to improve safety in a destination and a positive image can be expected. Destination managers could develop a safety perception assessment to identify and eliminate the main sources of safety concerns in a particular destination. The assessment of safety perception should be essential for effective destination management, as targeted risk prevention and strategies are important in the decision to motivate tourists, the sustainable use of tourism resources, and the cycle of development of the tourism industry **(Cui et al., 2016)**. Safety in tourist destinations is of the utmost importance and should also be one of the political priorities in the region analyzed, as tourist visitor perceptions change frequently in response to emerging risks **(Psaroudakis et al., 2021)**. At the time of the COVID-19 pandemic, health and safety should be a

priority. The political challenge is to ensure that tourists in a country feel safe and do not have to tolerate risk, which, in turn, will help improve the image of a destination. Policymakers should focus on individual attributes, such as crowds in tourist spots, tourism signs and messages communicating safety, traffic safety, pollution, and other factors. Monitoring of all safety attributes and early detection of risks should be integrated into public policies, while greater attention should be paid to specific tourism policies in the risk areas of each country, or intended destinations in the countries analyzed **(Privara and Rievajova, 2021)**. The study provides a valuable platform of findings that may help in the effort of the Visegrad Group to improve the destination image and achieve the objectives they have set in the strategic priorities for 2021 **(Visegrad Fund, 2021)**.

In holiday destinations, while focusing on the views of domestic visitors, security concerns can arise for two main reasons, namely, technical equipment and culture. For instance, the improvement of technical security to a newer and more efficient system will mean it is not only safer within the political regulations (e.g., improvement of infrastructure and signage), but also within the competence of the operators themselves (improvement of equipment in accommodation facilities). Culture is a society-wide concept, on which political authorities have a decisive influence, and this influence is not limited solely by legislative regulation. It is about shaping society in a direction that should lead to an increase in friendliness, helpfulness, tolerance, and so on. This goal can be achieved through an improvement in living standards and a reduction of regional disparities. Although the implications were concentrated in the context of the COVID-19 pandemic, they can also be implied in other changes that impact society impact.

The study also appeals to health and safety during the technological and social changes brought about by COVID-19. Policymakers and tourism managers should provide adequate interventions to mitigate health risks to tourists and to manage health threats. Because the study provides unique findings from the COVID-19 pandemic, researchers and managers around the world can build on it. This is a great added value to the study of technological and social change.

5.2. Limitations and further research

The most serious limitation of the study was observed in the research sample, as discrepancies were identified compared to the general populations of the countries studied. Although there were clear disproportions between men and women, and between students and other population categories, this deficiency is not expected to distort the results significantly. Another possible limitation was the disproportions between the forms of tourism, the largest deviations occurring in Hungary. However, the preference for the form of tourism is an attribute related to the specific possibilities of individual countries in terms of tourism. Thus, even in this case, no significant bias in the results is expected. Further studies should focus on other regions outside Central Europe and compare results across regions. More research is needed to assess how significant technological and social changes impact the tourism industry and tourists' perceptions. Our results are promising and should be validated by a larger sample size.

6. Conclusions

Perception of safety represents an important topic in Central European countries, and not only during the COVID-19 pandemic. This study revealed its role in the context of the image of the destination, which is an essential factor for the development of tourism. The objective of the study was to assess

the relationships between perceptions of safety and the image of the destination in the Central European region during the COVID-19 pandemic. The main findings revealed that the higher the level of perceived safety, the higher the level of the perceived image of a destination. In other words, lower perceived safety concerns were associated with a higher positive perceived image of a destination and vice versa. The most significant dimensions of safety concerns were health and facilities and services. In contrast, the least significant relationships were identified in concerns about the safety of regiona culture. All these findings enrich the literature on destination image in the context of perceived safety in the Central European region. The uniqueness of the findings obtained during the pandemic is also a great inspiration for researchers and managers in other countries.

An investigation of the relationship between destination image and destination safety is very important for making strategic decisions for tourism destination marketing. If tourists feel unsafe or in danger in the holiday destination, this can give them negative impressions of the destination and this negativity can be quite harmful to the development of tourism in a given location of the country, and in the long term, it can lead to a decline in tourism in the given area. If tourists feel threatened or in danger, they are not likely to return to the destination nor to recommend this destination to others. In the long term, this can also create regional disparities in local development, especially in countries where tourism is the dominant sector of the country's economy. The implementation of research on this topic will make it possible to obtain valuable data for the creation of the concepts, wherein it will be possible to understand the role of tourist satisfaction in developing loyalty Carrying out research studies on this issue will help create a valuable platform for the development of benchmarking indicators and comparative analyses.

These efforts are expected to be reflected in a more positive destination image, which is also beneficial for the development of tourism The revitalization of tourism is more than necessary owing to the impact of COVID-19.

Appendix 1

Variable	Questionnaire item	Mean	Med	Std Dev
IMG inf	Destination had quality infrastructure (roads, airport, and/or utilities)	3.76	4	1.14
	Destination had suitable accommodation	4.25	5	0.97
	Destination had a good network of tourist information (tourist centers)	4.03	4	1.04
	Destination had a good standard of hygiene and cleanliness	4.21	4	0.97
	Destination was safe	4.34	5	0.92
	Destination had good shopping facilities	3.69	4	1.21
IMG att	Destination had beautiful natural attractions (parks, forests, and/or trails)	4.33	5	1.00
	Destination had beautiful scenery	4.29	5	0.99
	Destination had a good climate	4.30	5	0.96
	Destination offered interesting cultural events (festival and/or concerts)	3.44	3	1.31
	Destination offered interesting historical attractions (museums and/or art centers)	3.62	4	1.31
IMG val	Destination's accommodation was reasonably priced	4.10	4	1.04
	Destination was an inexpensive place to visit	3.86	4	1.15
	The ratio of prices and quality of products was good in the destination	4.00	4	1.04
	Destination offered good value for my travel money	4.06	4	1.01
	I had a choice of several price levels.	3.77	4	1.19
IMG enj	Destination was a pleasing travel place	4.41	5	0.91
	Destination was an enjoyable travel place	4.00	4	1.10
	Destination was an exciting travel place	3.91	4	1.12
	Destination was a novel travel place	3.04	3	1.42
IMG bi	I am likely to visit the destination in the near future	4.13	4	1.05
	I am likely to recommend the destination to those who want advice on travel	4.21	5	1.04
	I have a high likelihood of visiting the destination in the near future	3.92	4	1.17
SCR env	I was concerned about the signs regarding safety of tourism (warning information is not clear enough)	1.84	1	1.15
	I was worried that tourism safety monitoring facilities were insufficient	1.86	1	1.10
	I was concerned that environmental pollution in the tourist destination was serious	1.97	2	1.20
	I was worried about traffic safety and chaos	1.94	1	1.17
	I was worried about crowds in tourist spots	2.12	2	1.29
SCR fac	I was worried about local food safety when buying food	1.66	1	1.06
	I was worried about the safety of accommodation when staying locally	1.70	1	1.07
	I was worried about safety and afraid of getting in an accident when traveling by car	1.92	1	1.20
	I tended to go to large supermarkets or specialty stores for fear of fraud and being deceived when buying items	1.72	1	1.10
SCR cul	I was worried that the attitude of the local service staff toward tourists was not good	1.68	1	1.07
	I was worried that local residents were not friendly toward tourists	1.72	1	1.09
	I was concerned that local residents would ostracize tourists	1.66	1	1.04
	I was afraid of violating local cultural practices and taboos	1.68	1	1.05
SCR hlt	I was worried about safety owing to the possible threat to my health in general	1.66	1	1.03
	I was worried about my health due to the possible presence of certain viral diseases in the destination	1.82	1	1.16
	I was worried about safety owing to the possible threat to my health caused by the environment itself	1.62	1	1.00
	I was worried about safety due to the potential threat to my health from infrastructure	1.65	1	1.05

Note: Med-median, Std Dev-standard deviation, IMG inf-infrastructure image, IMG att-attraction image, IMG val-value for money image, IMG enj-enjoyment image, IMG bi-behavioral intention image, SFT env-perceived safety of tourism environment, SFT fac-perceived safety of facilities and services, SFT cul-perceived safety of regional culture, SFT hlt-health and safety concerns.

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